

# ***Rhynchospora croydonensis* R.Booth (Cyperaceae), a new species from northern Queensland**

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## **Summary**

Booth, R. (2015). *Rhynchospora croydonensis* R.Booth (Cyperaceae), a new species from northern Queensland. *Austrobaileya* 9(3): 416–420. A new species, *Rhynchospora croydonensis* R.Booth, is described and illustrated and notes are provided on its distribution and habitat. A key to Queensland species of *Rhynchospora* Vahl. is provided.

Key Words: Cyperaceae, *Rhynchospora*, *Rhynchospora croydonensis*, Australia flora, Queensland flora, new species, taxonomy, identification key

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## **Introduction**

*Rhynchospora* Vahl. is a large, cosmopolitan genus consisting of more than 300 species, mostly occurring in the tropics and subtropics of the Central and South Americas (Strong 2006). Only a few species are widely distributed, though most of the Australian species also occur in southeast Asia (Kern 1974). Australia has about twenty one species, with fourteen of these occurring in Queensland (Bostock & Holland 2014).

Bentham & Hooker (1883) separated the genus *Rhynchospora* into two informal sections, “*Haplostylae*” and “*Diplostylae*” based on the degree of stylar branching and this was followed by Kükenthal (1949, 1952). Thomas *et al.* (2009) constructed a preliminary molecular phylogeny of the genus that indicated the two informal sections in *Rhynchospora* are artificial. A full phylogenetic study of the genus with greater sampling from Australia and Asia is still needed.

According to the classification of Goetghebeur (1986), *Rhynchospora* may be included within the subfamily *Cyperoideae*, tribe *Rhynchosporeae*. However, Bruhl (1995)

indicated that the tribe *Rhynchosporeae* is part of the subfamily *Caricoideae*. Muasya *et al.* (2009) found good molecular support for the recognition of tribe *Rhynchosporeae* in an isolated position near tribe *Cariceae* and *Scirpeae*, with the *Rhynchosporeae* consisting solely of the genus *Rhynchospora* (including *Pleurostachys* Brongn.).

Sharpe (1989) provided a key and descriptions for four species in southeast Queensland, but the most comprehensive set of descriptions remain those provided by Kükenthal (1949, 1952). Due to the extensive field work undertaken in recent years, particularly in north Queensland, more *Rhynchospora* material has become available for study at the Queensland Herbarium. Critical examination of these collections by the present author has now enabled this new species to be formally described and named.

## **Materials and methods**

All herbarium specimens of *Rhynchospora* held at BRI have been examined. Measurements were made from dried material.

## Taxonomy

***Rhynchospora croydonensis*** R.Booth, **sp. nov.** similar to *Rhynchospora pterochaeta* F.Muell. but differs in the achene surface that has scattered hispid hairs (versus densely papillose), and hairs on the hypogynous bristles at the very base of the bristles (versus densely pilose for half their length). **Typus:** Queensland. BURKE DISTRICT: 6.5 km along Coralie Road from Croydon – Claraville Road junction, 22 April 2011, *K.R. McDonald KRM10937* (holo: BRI [AQ759401]; iso: NSW).

*Rhynchospora* sp. Croydon (S.L.Everist 5384); R.Booth in Bostock & Holland (2014).

Annual or short lived perennial 20–45 cm tall; culms tufted, 3-angled, trigonous, striate, 0.6–1.3 mm wide, glabrous. Lamina flat or conduplicate, 1–3 mm wide with long ciliate hairs when young, glabrescent. Ligule membranous. Involucral bracts ciliate on the margins, longer than the inflorescence. Inflorescence a single dense head, 1.2–1.5 cm long by 2–2.5 cm wide. Spikelets lanceolate or linear-lanceolate, 7.5–10 mm long, pale brown to brown. Perianth present as 6 hypogynous bristles, unequal in length, longer than the nut and style base, antrorsely scabrid, plumose at the base, glabrous above. Glumes distichous, 6–7, narrowly ovate or ovate-lanceolate, 2–10 mm long, 1.2–1.8 mm wide, coloured straw or light brown to brown, glabrous, keeled or with the midrib distinct, not nerved; apex acute; margin glabrous; rachilla wingless. Style deciduous, entire, glabrous. Achene with a persistent style base, not grooved, 2.4–3 mm long, as broad or broader than the achene and longer than, or equalling the achene; margins winged, setulose; stramineous, or yellow-brown. Achene obovoid, biconvex, lenticular, or concave-convex; 2.2–3 mm long, 1.3–1.6 mm wide, not ribbed; surface smooth or with

a faint cell pattern, with hispid hairs mainly in the distal half, pilose hairs only at the base of the achene. **Fig. 1.**

**Additional specimens examined:** Queensland. BURKE DISTRICT: Cothilda Station, May 2001 *Turpin GPT872* (BRI); between Croydon and Gilbert River, May 1954, *Everist 5384* (BRI). COOK DISTRICT: Staaten River NP, c. 35 km W of Bulimba Homestead, 150 km W of Chillagoe, Sep 2013, *Leitch ODA004939* (BRI); Fishermans Waterhole, Walsh River, N of Chillagoe, Mar 2005, *McDonald KRM3936a* (BRI); Bulleringa NP, Jul 2006, *Lovatt TH9249* (BRI); 79 km from Georgetown on Croydon Road, Apr 1996, *Forster PIF19012b & Ryan* (BRI); 23 miles [38.3 km] SE of Croydon township, Jul 1954, *Speck 4719* (CANB).

**Distribution and habitat:** *Rhynchospora croydonensis* is endemic to northern Queensland where it has been found between Croydon and the Gilbert River in the south, Staaten National Park in the north, and west to Bulleringa National Park (**Map 1**). Plants usually grow in drainage lines in sandy soils often with *Melaleuca viridiflora* Sol. ex Gaertn. var. *viridiflora*.

**Affinities:** *Rhynchospora croydonensis* is closely related to *R. pterochaeta*, which it differs from most obviously in the achene characters: *R. pterochaeta* being papillose over much of its surface, while *R. croydonensis* has hispid hairs, mainly in the distal part of the achene.

**Conservation status:** There are only nine collections of *Rhynchospora croydonensis* and its geographic range is not large. This sedge has been found in Bulleringa and Staaten River National Parks and is likely to be widespread in its seasonally ephemeral habitat dominated by annual or geophytic species. It is not considered to be threatened and a **Least Concern** conservation status is recommended.

**Etymology:** The epithet is from the town of Croydon in the Gulf of Carpentaria near where this species was first collected.



**Fig. 1.** *Rhynchospora croydonensis*. A. habit  $\times 0.4$ . B. inflorescence  $\times 3$ . C. achene and hypogynous bristles  $\times 12$ . All from McDonald KRM10937 (BRI).

**Key to the Queensland species of *Rhynchospora***

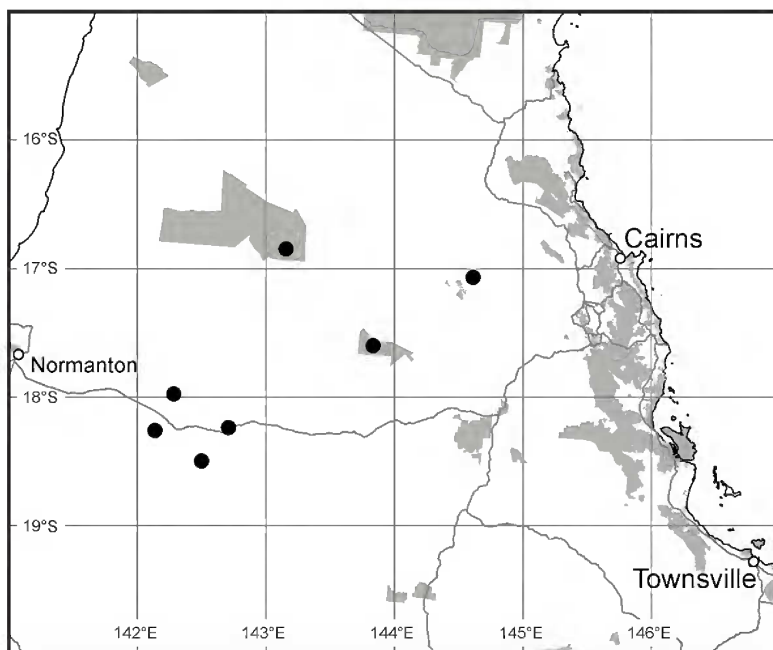
- 1 Inflorescence a compound panicle or clustered in loose corymbs . . . . . **2**
1. Inflorescence a single, dense head . . . . . **4**
- 2 Stems filiform, < 1 mm wide . . . . . **R. gracillima**
2. Stems stout, 2–15 mm wide . . . . . **3**
- 3 Inflorescence a large, loose, compound panicle; style base furrowed on both sides; stout plants 70–200 cm high . . . . . **R. corymbosa**
3. Inflorescence of several small, irregular corymbs; style base not furrowed; slender plants to 1 m high, usually less . . . . . **R. brownii**
- 4 Style base 0.4–0.6 mm long; bristles whitish, shorter than the achene . . . . . **R. rubra**
4. Style base > 0.6 mm long; bristles usually > the achene in length . . . . . **5**
- 5 Base of the achene and the bristles with no pilose hairs (hispid hairs may be present on the bristles only) . . . . . **6**
5. Base of the achene or at least bottom part of the bristles with pilose hairs . . . . . **9**
- 6 Achene (not including the style base) < 2 mm long . . . . . **R. subtenuifolia**
6. Achene > 2 mm long . . . . . **7**
- 7 Spikelets < 6 mm long . . . . . **R. submarginata**
7. Spikelets > 6 mm long . . . . . **8**
- 8 Style base furrowed or grooved, achene with broad triangular based hairs at the apex; bristles much longer than the style base . . . . . **R. exserta**
8. Style base not furrowed, achene with rather fine hispid hairs; bristles only just longer than the achene and style base . . . . . **R. heterochaeta**
- 9 Achene revolute, papillose on the nearly joined margins . . . . . **R. leae**
9. Achene biconvex or convex, not revolute . . . . . **10**
- 10 Style base grooved, curved, or winged adjacent to the achene, often setulose on the margins . . . . . **11**
10. Style base not grooved, curved or winged . . . . . **13**
- 11 Style base long-conical with a groove down the middle . . . . . **R. longisetis**
11. Style base as broad or broader than the achene, curved, but not grooved . . . . . **12**
- 12 Achene papillose (hairs rounded at the ends) over much of its surface, pilose hairs covering lower half of the achene . . . . . **R. pterochaeta**
12. Achene with hispid hairs (pointed at the ends) mainly in the distal half, pilose hairs only at the base of the achene . . . . . **R. croydonensis**
- 13 Achene > 3 mm long, style base at least 2 mm long . . . . . **R. longisetis**
13. Achene < 3 mm long, style base < 1.5 mm long . . . . . **14**
- 14 Achene papillose over most of its surface, bristles unequal in length . . . . . **R. wightiana**
14. Achene hispid or occasionally papillose, mainly in the distal half, bristles equal in length . . . . . **R. affinis**

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**Map 1.** Distribution of *Rhynchospora croydonensis*, grey shaded areas are conservation reserves.